

An Introduction to Science & Technology in the New Curriculum for Wales

Professor Tom Crick
Swansea University
thomas.crick@swansea.ac.uk

In January 2020, the new bilingual Curriculum for Wales (Cwricwlwm i Gymru) was published by the Welsh Government, alongside ongoing major education system-level reforms, from assessment and qualifications, through to initial teacher education and professional learning. Wales has previously followed the direction of England in curriculum and qualifications policy in recent years, being subject to various iterations of the prescriptive National Curriculum, before political devolution to the National Assembly for Wales (now, Senedd Cymru/Welsh Parliament) in 1999. Since 2015, Wales has been developing a new bilingual, purpose-led national curriculum for learners aged 3-16, co-constructed with practitioners, in line with international trends towards school autonomy in determining curricular content, child-centred pedagogy and a focus on so-called “21st century” skills. The framing around four overarching purposes provides the aspiration for the new curriculum: to support learners to become i) *ambitious, capable learners, ready to learn throughout their lives*; ii) *enterprising, creative contributors, ready to play a full part in life and work*; iii) *ethical, informed citizens of Wales and the world*; and iv) *healthy, confident individuals, ready to lead fulfilling lives as valued members of society*. With the reorganisation of the curriculum into six Areas of Learning and Experience (AoLE: *Expressive Arts; Health & Wellbeing; Humanities; Languages, Literacy & Communication; Mathematics & Numeracy; and Science & Technology*) and three statutory cross-curricular skills (literacy, numeracy and digital competence), the curriculum provides a framework and structure for learner progression and the development of knowledge, experience and skills.

The importance of science and technology in our modern world cannot be overstated. Developments in these areas have always been drivers of change in society, underpinning innovation and impacting on everyone’s lives culturally, economically and environmentally. Linking to the four purposes and developing future citizens of Wales, it is clear we want them to be scientifically and technologically literate, being aware of the impact and influence on all of our lives. As such, the Science & Technology AoLE will be increasingly relevant in the opportunities young people encounter and the life choices that they make. This AoLE draws on the disciplines of biology, chemistry, computer science, design & technology, and physics to enhance learners’ knowledge and understanding of the world. The development of this AoLE has been in the wider context of ongoing international policy focus on STEM education, including a number of major national curricula, qualifications and skills reform initiatives, especially with ICT/computer science across the UK.

As with the others AoLEs, we introduce the statements of “what matters”: the “big ideas”, key principles, and the overarching structure for the knowledge, experience and skills that all learners should be exposed to over the 3-16 continuum. For Science & Technology, we have six statements:

- *Being curious and searching for answers is essential to understanding and predicting phenomena;*
- *Design thinking and engineering offer technical and creative ways to meet society's needs and wants;*
- *The world around us is full of living things which depend on each other for survival;*
- *Matter and the way it behaves defines our universe and shapes our lives;*
- *Forces and energy provide a foundation for understanding our universe;*
- *Computation is the foundation for our digital world.*

These statements, whilst grounded in the five constituent disciplines of the AoLE, provide the structure for interdisciplinary learning, teaching and assessment both within the AoLE, as well as across the entire curriculum. These interdisciplinary aspirations are further reinforced by the deeper descriptions of learning and the overarching principles of progression, supporting diverse routes into post-compulsory education and entering the world of work: increasing breadth and depth of knowledge; deepening understanding of the ideas and disciplines within areas of learning and experience; refinement and growing sophistication in the use and application of skills; making connections and transferring learning into new contexts; and, increasing effectiveness as a learner.

With Royal Assent given for the Curriculum and Assessment (Wales) Act 2021 on 29 April 2021, we now have a roadmap for the implementation of the new Curriculum for Wales, phasing in from September 2022. Whilst COVID-19 has clearly impacted the preparation for the new Curriculum, there is a long-term commitment from the Welsh Government to further build the confidence and capability of teachers in Wales through significant investments in professional learning and enquiry.

For more information, please see: <https://hwb.gov.wales/curriculum-for-wales/science-and-technology/>